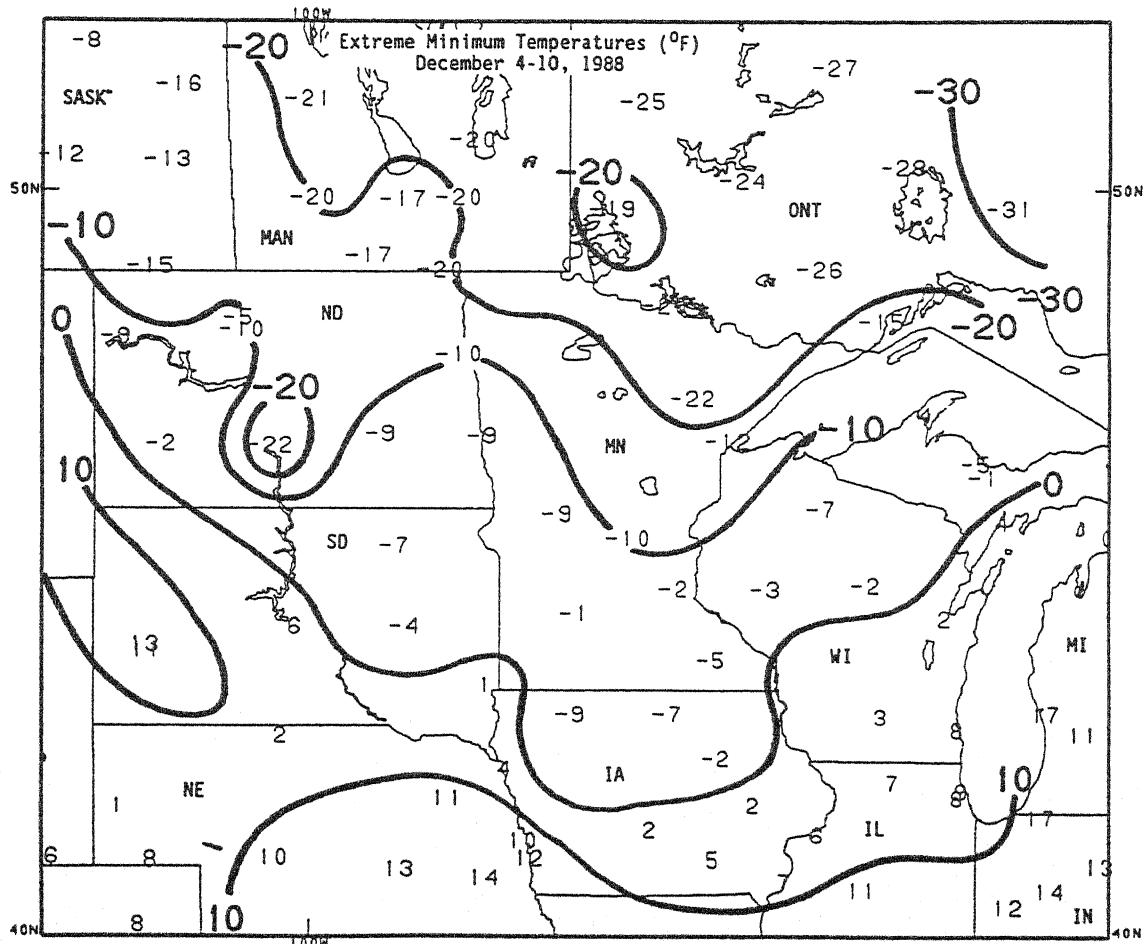


WEEKLY CLIMATE BULLETIN

No. 88/50

Washington, DC

December 10, 1988



TOWARDS THE END OF THE WEEK, BITTERLY COLD ARCTIC AIR INVADED THE NORTHERN GREAT PLAINS, UPPER MIDWEST, AND NEW ENGLAND AS TEMPERATURES PLUMMETED BELOW 0° F. IN ADDITION, THE 1988 U.S. AUTUMN (SEP-NOV) CLIMATE REVIEW IS ENCLOSED AND COMMENCES ON PAGE 9.

UNITED STATES DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER

WEEKLY CLIMATE BULLETIN

Editor:	David Miskus
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This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major global climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every 3 months).
- Global temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center via the Global Telecommunication System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

To receive copies of the Bulletin or change mailing address, write to:

Climate Analysis Center, W/NMC53
Attention: Weekly Climate Bulletin
NOAA, National Weather Service
Washington, DC 20233
Phone: (301) 763-8071

UNITED STATES OFFICE OF PERSONNEL MANAGEMENT
OFFICE OF WASHINGTON EXAMINING SERVICES
WASHINGTON, D.C. 20415

ADMINISTRATIVE, PROFESSIONAL, SCIENTIFIC COLLEGE ENTRY-LEVEL OPPORTUNITIES

INTRODUCTION

Most college entry-level-type jobs are filled in one of several ways:

- A. From competitive examinations handled by the U.S. Office of Personnel Management, or
- B. From competitive examinations handled by specific Federal agencies, or
- C. From direct application to Federal agencies that recruit under the professional, administrative careers (PAC) hiring program.

We have developed a fact sheet about each of these methods and the types of career fields covered by them. Review each fact sheet to find out what steps you need to follow in applying for a specific occupation. Remember, though there are many different career fields which provide entry-level opportunities for college graduates, **not all are open to receipt of applications**. If you apply for a position for which the Government is **not recruiting**, your application may not be retained.

AGENCIES OUTSIDE THE COMPETITIVE CIVIL SERVICE

The agencies listed below are outside the competitive civil service. These organizations fill their jobs through their own hiring systems. OPM does not supply information or application forms for their jobs. If you are interested in a job with one of these agencies, you should contact the organization directly.

Federal Bureau of Investigation
10th St. and Pennsylvania Ave., NW
Washington, D.C. 20535

National Security Agency
Fort Meade, MD 20775

Federal Reserve System
Board of Governors
20th St. and Constitution Ave., NW
Washington, D.C. 20551

U.S. Nuclear Regulatory Commission
Division of Organization of Personnel Resources and
Employment Programs Branch
Washington, D.C. 20555

General Accounting Office
Room 4650, 441 G St., NW
Washington, D.C. 20548

U.S. Department of State
P.O. Box 9317—Rosslyn Station
Arlington, VA 22209

FACT SHEET A ***College Entry-Level Examinations by OPM***

This information sheet contains entry-level positions for which the U.S. Government usually has opportunities. If a career field is shown below, check the local **Federal Job Opportunity Listing (FJOL)** to see if we are currently accepting applications. Remember, you can only apply for those jobs found in the local FJOL. The FJOL is posted in the Federal Job Information Center and the State Employment Services.

ACCOUNTING, ADMINISTRATION, FINANCE—GS-5/7 *If Open, Will Appear on Local FJOL*

Accountant/Auditor	Contract Specialist Computer Specialist Trainee	Internal Revenue Officer Tax Technician	Social Insurance Positions
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ENGINEERING, MATH, SCIENCES—GS-5/7 *If Open, Will Appear on Local FJOL*

Agricultural Commodity Trader Biological Sciences	Engineering Physical Science Positions Air Traffic Controller	Food Inspector Air Traffic Assistant Airway Science Positions	Mathematics and Related Fields Forester
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LAW ENFORCEMENT/PUBLIC PROTECTION—GS-5/7 *If Open, Will Appear on Local FJOL*

Border Patrol Agent	Investigator (Criminal/General)	Customs Inspector	Treasury Enforcement Agent
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MEDICAL/HEALTH RELATED—GS-5 *If Open, Will Appear on Local FJOL*

Nurse—Positions nationwide

MISCELLANEOUS—GS-5/7

General liberal arts and business—See Fact Sheet C for information.	Librarian—Positions nationwide. If open, will appear on the local FJOL.	Visual Arts—if opportunities, will appear on the local FJOL.
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FACT SHEET B

College Entry-Level Examinations Handled by Specific Agencies

This fact sheet shows those career fields that are filled from examinations handled by specific Federal agencies. If a career field is shown below and you want more information, you will need to write to the agency address provided for that field.

ACCOUNTING, ADMINISTRATION, FINANCE—GS-5/7

Bank Examiner Federal Deposit Insurance Corporation 550 17th St., NW, Room 800 Washington, D.C. 20429	Club Manager Department of Defense Special Examining Unit for MWR Positions HQDA DACF-NFS-D 2461 Eisenhower Ave. Alexandria, VA 22331-0523	Commissary Management U.S. Army Troop Support Headquarters DALO-TAP-C Examining Section Fort Lee, VA 23801
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Commissary Store Management Department of the Air Force Special Examining Unit OPM/DPU Kelly Air Force Base, TX 78241	Internal Revenue Agent Mid-Atlantic Region Special Examining Unit 841 Chestnut St., 2nd Floor Philadelphia, PA 19107
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ENGINEERING, MATH SCIENCES—GS-5/7

Aerospace Technologist NASA Headquarters Personnel Policy and Program Management NPM-28 Washington, D.C. 20546	Agricultural Management Specialist U.S. Department of Agriculture Farmers Home Administration Special Examining Unit Personnel Division 14th St. & Independence Ave., SW Washington, D.C. 20250
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LAW ENFORCEMENT/PUBLIC INSPECTION . GS-5/7

Correctional Officer Federal Prison System Examining Unit, Room 400 320 First St., NW Washington, D.C. 20534	Deputy U.S. Marshal Special Examining Unit One Tysons Corner Center McLean, VA 22102
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MEDICAL/HEALTH RELATED—GS-5 and Above

Clinical/Counseling Psychologist Veterans Administration Special Examining Unit P.O. Box 24269 Richmond, VA 23224-0269	Corrective Therapist Veterans Administration Special Examining Unit P.O. Box 24269 Richmond, VA 23224-0269	Dietitian Veterans Administration Special Examining Unit P.O. Box 24269 Richmond, VA 23224-0269
Educational Therapist Veterans Administration Special Examining Unit P.O. Box 24269 Richmond, VA 23224-0269	Manual Arts Therapist Veterans Administration Special Examining Unit P.O. Box 24269 Richmond, VA 23224-0269	Psychologist Department of Justice Federal Prison Exam Unit Rm. 400 320 First St., NW Washington, D.C. 20534
Recreational/Creative Arts Therapist Veterans Administration Special Examining Unit P.O. Box 24269 Richmond, VA 23224-0269		Therapist, (Occupational and Physical) Veterans Administration Special Examining Unit P.O. Box 24269 Richmond, VA 23224-0269

SOCIAL SCIENCE AND RELATED FIELDS—GS-5 and Above

Recreation Specialist Department of Defense Special Examining Unit for MWR Positions HQDA DACF-NFS-D 2461 Eisenhower Ave. Alexandria, VA 22331-0523	Social Worker Veterans Administration Special Examining Unit P.O. Box 24269 Richmond, VA 23224-0269	Sports Specialist Department of Defense Special Examining Unit for MWR Positions HQDA DACF-NFS-D 2461 Eisenhower Ave. Alexandria, VA 22331-0523
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FACT SHEET C

College Entry-Level Careers—Apply Directly to Agencies

Career Field Covered

There is a wide variety of career fields that are covered by the direct application hiring process called "PAC Schedule B." These entry-level professional, administrative careers are those for which most general business and liberal arts majors can qualify. A list of the fields for which direct application may be made appears at the end of this narrative.

How PAC Jobs Are Filled

Federal agencies that wish to fill PAC jobs must first advertise the vacancies within the Federal community and also give priority consideration to Federal employees who have been or are about to be displaced from their jobs because of reduction in force. If they fail to find sufficient qualified applicants through these sources, they may request authority from the U.S. Office of Personnel Management (OPM) to fill the jobs from outside the Federal service.

Kinds of Jobs

Trainee positions in a variety of administrative and managerial areas such as:

• Personnel Management	• Management Analysis
• Budget Analysis	• Quality Assurance

(See list at end of narrative for jobs covered by this program.)

Qualifications

For most PAC jobs, applicants may qualify for a GS-5 with:

- A bachelor's degree from an accredited college or university or
- 3 years of general administrative work experience including 1 year at or equivalent to the grade at GS-4 level;
- A combination of education and appropriate experience totaling 3 years (30 semester credit hours substitutes for 9 months of work experience).

PAC positions at the GS-7 level require more specialized work experience, graduate study, or Superior Academic Achievement.

Jobs Not Covered

The procedures described here for PAC jobs do not apply to all jobs at the GS-5 and GS-7 levels. Some of the jobs specifically excluded from these procedures are:

• Engineer	• Computer Specialist
• Mathematician/Statistician	• Economist
• Physical Scientist	• General Investigator
• Life Scientist	• Criminal Investigator
• Accountant/Auditor	• Tax Technician/Auditor
• Internal Revenue Officer	• Customs Inspector
• Contract and Procurement Specialist	• Social Insurance Claims Examining

TYPES OF APPOINTMENTS

Appointments made to PAC jobs at GS-5 and GS-7 are in the excepted service.

HOW TO FIND OUT WHAT JOBS ARE AVAILABLE

Agencies with PAC authority will determine the nature and extent of recruitment publicity. In the Washington, D.C. area, applicants may visit the Federal Job Information Center, 1900 E Street, N.W., Room 1416, from 8:30 a.m. to 2:30 p.m., Monday through Friday, to review

the list of PAC authorities. Because the list is very long, it cannot be read to applicants over the telephone nor will it be sent through the mail. Applicants should contact the selecting agencies in the cities where the jobs in which they are interested are located.

Series	Title	Series	Title	Series	Title
011	Bond Sales Promotion	221	Position Classification	962	Contact Representative
018	Safety Management	222	Occupational Analyst	965	Land Law Examining
020	Community Planning	223	Salary and Wage Administration	967	Passport and Visa Examining
023	Outdoor Recreation Specialist	230	Labor Management and Employee Relations	987	Tax Law Specialist
025	Park Management	233	Labor Relations	990	General Claims Examining
028	Environmental Protection	235	Employee Development	991	Workers' Compensation Claims Examining
080	Security Administration	244	Labor-Management Relations Examining	994	Unemployment Compensation Claims Examining
101	Social Science	246	Contractor Industrial Relations	996	Veterans Claims Examining
105	Social Insurance Administration	249	Wage and Hour Compliance Specialist	997	Civil Service Retirement Claims Examining
106	Unemployment Insurance	301	General Clerical and Administrative	1001	General Arts and Information (Fine and Applied Arts Positions are excluded)
120	Food Assistance Program Specialist	341	Administrative Officer	1015	Museum Curator
130	Foreign Affairs	343	Management Analyst	1035	Public Affairs
131	International Relations	345	Program Analysis	1082	Writing and Editing
132	Intelligence	346	Logistics Management	1083	Technical Writing and Editing
140	Manpower Research and Analysis	393	Communications Specialist	1101	General Business and Industry
142	Manpower Development	501	General Accounting Clerical and Administrative	1103	Industrial Property Management
150	Geography	560	Budget Administration	1104	Property Disposal
170	History	570	Financial Institution Examining	1130	Public Utility Specialist
180	Psychology	673	Hospital Housekeeping Management	1140	Trade Specialist
184	Sociology	685	Public Health Program Specialist	1145	Agricultural Program Specia
190	General Anthropology	950	Paralegal Specialist		
193	Archeology				
201	Personnel Management				
205	Military Personnel Management				
212	Personnel Staffing				

Continued on Next Page

Series	Title	Series	Title	Series	Title
1146	Agricultural Marketing	1715	Vocational Rehabilitation (For positions at GS-7 only)	2003	Supply Program Management
1147	Agricultural and Fisheries Marketing Reporter	1720	Education Research and Program Specialist	2010	Inventory Management
1149	Wage and Hour Law Administration	1816	Immigration Inspecting	2030	Distribution Facilities and Storage Management
1150	Industrial Specialist	1831	Securities Examining Compliance	2032	Packaging Specialist
1160	Financial Analysis	1854	Alcohol, Tobacco, and Firearm Inspection	2050	Supply Cataloging
1163	Insurance Examining	1864	Public Health Quarantine Inspection	2101	General Transportation
1165	Loan Specialist	1889	Import Specialist	2110	Transportation Industry Analysis
1170	Realty	1910	Quality Assurance Specialist	2111	Transportation Rate and Tariff Examiner
1412	Technical Information Specialist	2001	General Supply	2125	Highway Safety Management
1420	Archivist			2130	Traffic Management
1421	Archives Specialist			2144	Cargo Scheduling
1701	General Education and Training			2150	Transportation Operations

GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF DECEMBER 10, 1988
(Approximate duration of anomalies is in brackets)

1. Central United States:

UNUSUALLY WET CONDITIONS DIMINISH.

Little or no precipitation fell in the central United States. See U.S. Weekly Climate Highlights [Ended at 5 weeks].

2. Argentina:

DRYNESS PERSISTS.

Little or no precipitation, less than 13.0 mm (0.51 inch), was observed at most stations in northern Argentina as dry conditions continued [24 weeks].

3. Eastern Europe:

TEMPERATURES MODERATE.

Unseasonably cold conditions were limited to southern Sweden, southern Finland, and northwestern European Soviet Union where temperatures were as much as 3.6°C (6.5°F) below normal [Ending at 7 weeks]. Mild weather, with temperatures averaging up to 6.6°C (11.9°F) above normal, occurred in regions farther south last week, including earthquake-ravaged Soviet Armenia and Georgia [Episodic Event].

4. Southeastern Siberia:

MILD CONDITIONS REMAIN.

A late season warm spell, with temperatures as much as 11.8°C (21.2°F) above normal, persisted in southeastern Siberia [9 weeks].

5. East Central China:

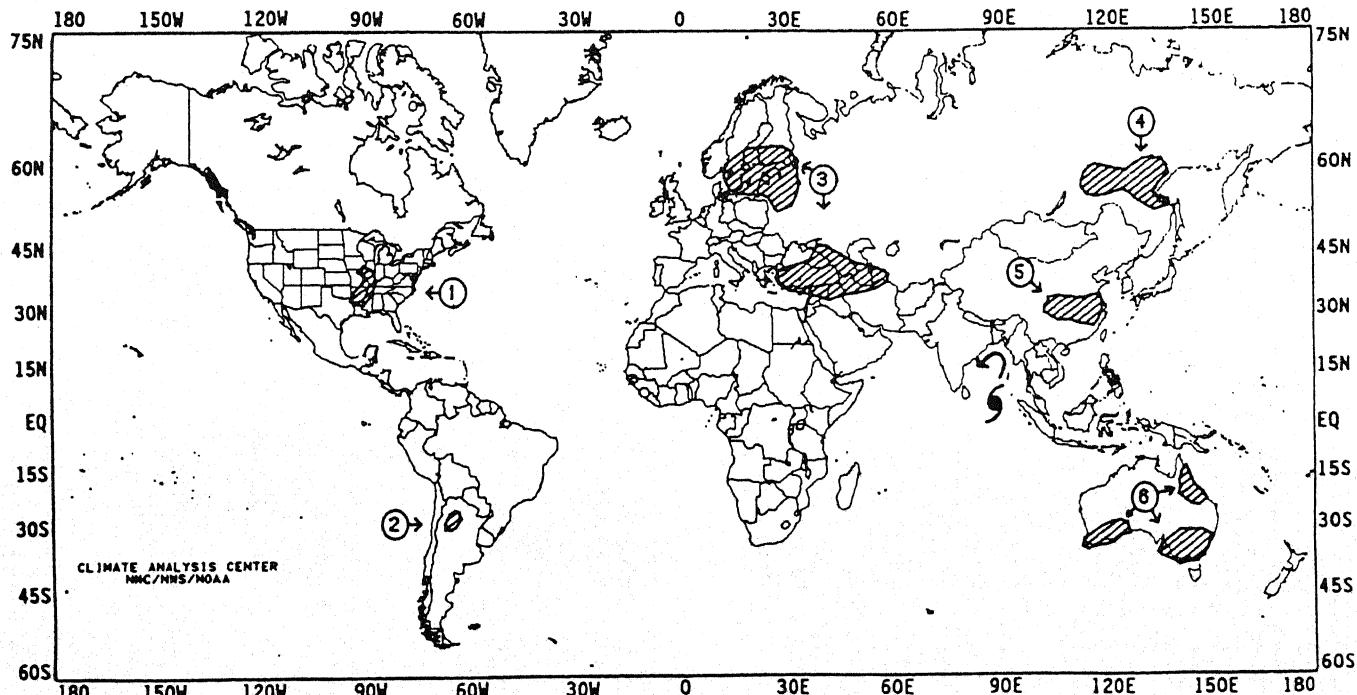
REGION VERY DRY.

Little or no precipitation fell in east central China as unusually dry conditions developed [11 weeks].

6. Australia:

SECTIONS OF COUNTRY UNUSUALLY WET.

Moderate to heavy precipitation fell in the southwestern, southeastern, and northeastern parts of Australia. Heaviest rainfall amounts, up to 106.2 mm (4.18 inches), were measured in Queensland [6 weeks].



Approximate locations of the major anomalies and events described above are shown on this map. See other maps in this Bulletin for current two week temperature anomalies, four week precipitation anomalies, longer term anomalies, and other details.

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF DECEMBER 4 THROUGH DECEMBER 10, 1988.

For the second consecutive week, relatively tranquil weather dominated the contiguous United States as most locations recorded little or no precipitation. The exceptions to this included portions of the lower Mississippi Valley and along the Pacific Northwest Coast. In the Far West, a weak Pacific storm system brought between 1 and 3 inches of precipitation to sections of coastal Washington and Oregon and the northern Cascades. Farther east, a low pressure center triggered heavy showers and thunderstorms in the eastern half of Texas (up to 5.0 inches) and central Louisiana (up to 3.2 inches), and dropped light snow on the southern halves of the Rockies and Appalachians. Elsewhere, moderate to heavy rains fell on parts of Hawaii and along the southern coast of Alaska (see Table 1). Light to moderate amounts were observed along the Pacific Northwest Coast, throughout most of the Rockies, the southern Great Plains, in much of the Southeast and mid-Atlantic, and in the central and eastern Great Lakes. Little or no precipitation was measured in the southern half of the Pacific Coast, the Intermountain West, the northern and central Great Plains, the Midwest, New England, along the southern Atlantic Coast, and in sections of Georgia and Florida.

Mild conditions persisted for the second straight week along the Pacific Coast, in the desert Southwest, and throughout the northern thirds of the Rockies and

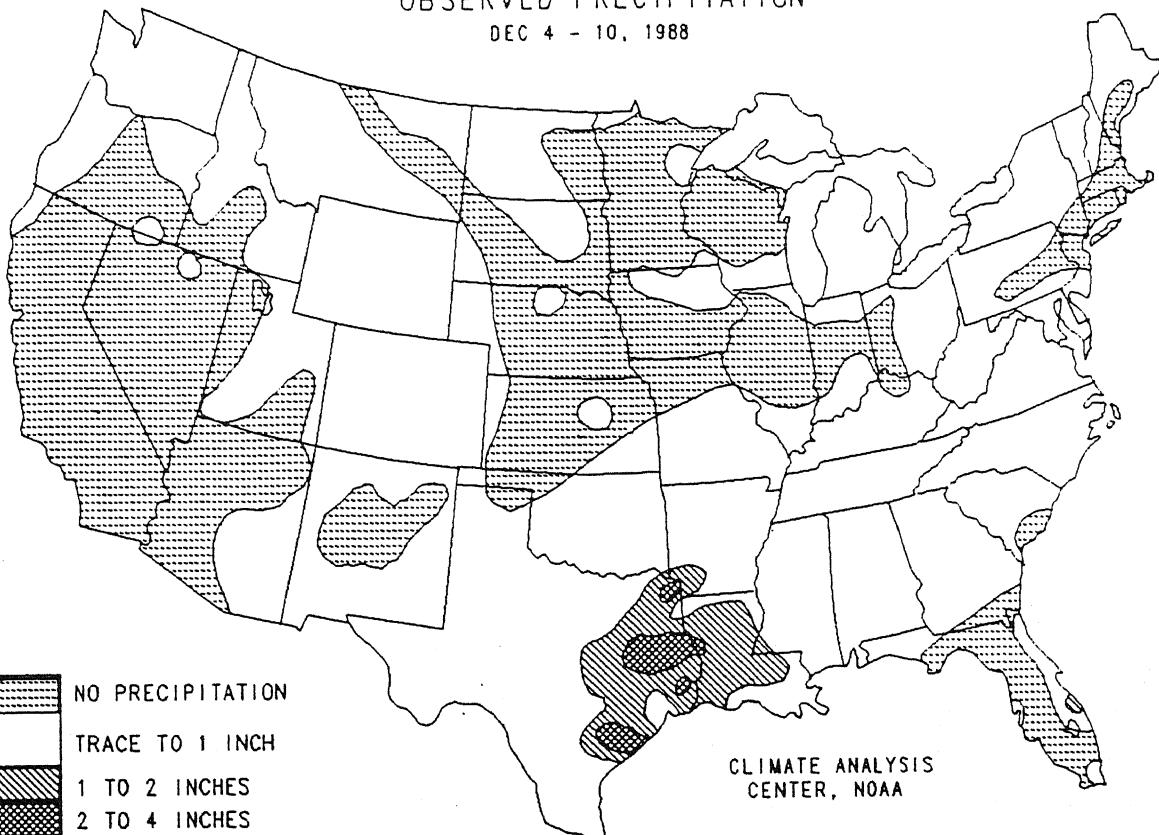
Great Plains (see Table 2). The greatest positive temperature departures (between +4° and +10°F) were located in the western thirds of Washington, Oregon, and Arizona, in central Montana, and in California, where strong Santa Ana winds (with gusts up to 80 mph) helped spread wildfires. Early in the week, several stations in California, the northern Rockies, the northern Great Plains, and upper Midwest tied or set new daily maximum temperature records. Near to slightly above normal temperatures were found in the Intermountain West, the central Great Plains, the middle Mississippi Valley, Florida, and from Michigan eastward to Connecticut. In Alaska, unseasonably mild conditions occurred in the southeastern and central parts of the state after several weeks of bitterly cold weather in the latter area. Below normal temperatures were reported in portions of the Great Basin, the southern Rockies, and the upper Midwest, and throughout the southern Great Plains, Southeast, and New England. The greatest negative temperature departures (between -4° and -7°F) occurred in northern New England, the central Rockies, and western Texas (see Table 3). The western third of Alaska remained unusually cold; however, temperatures moderated from the previous week. Frigid Arctic air invaded the north-central and northeastern U.S. towards the end of the week as lows dipped below 0°F (see front cover).

TABLE 1. Selected stations with one and one quarter or more inches of precipitation for the week.

<u>Station</u>	<u>Amount (In)</u>	<u>Station</u>	<u>Amount (In)</u>
Yakutat, AK	5.28	Bellingham, WA	1.92
Kahului, Maui, HI	5.13	Sitka, AK	1.74
Kodiak, AK	3.95	College Station, TX	1.70
Honolulu, Oahu, HI	3.34	Kokee, Kauai, HI	1.54
Cordova/Mile 13, AK	3.08	Killeen/Robert-Gray AAF, TX	1.47
Valdez, AK	3.04	Homer, AK	1.42
Baton Rouge, LA	3.02	Clovis/Cannon AFB, NM	1.41
Juneau, AK	2.94	Port Arthur, TX	1.39
Annette Island, AK	2.85	Waco, TX	1.38
Palacios, TX	2.83	Alexandria/England AFB, LA	1.37
Ketchikan, AK	2.24	Vero Beach, FL	1.31
Lufkin, TX	2.19	Dallas/Ft. Worth, TX	1.30
Victoria, TX	2.09	Ft. Worth/Meacham AFB, TX	1.29
Stampede Pass, WA	1.98	Texarkana, AR	1.28
Quillayute, WA	1.94	Lake Charles, LA	1.25

OBSERVED PRECIPITATION

DEC 4 - 10, 1988



DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)

DEC 4 - 10, 1988

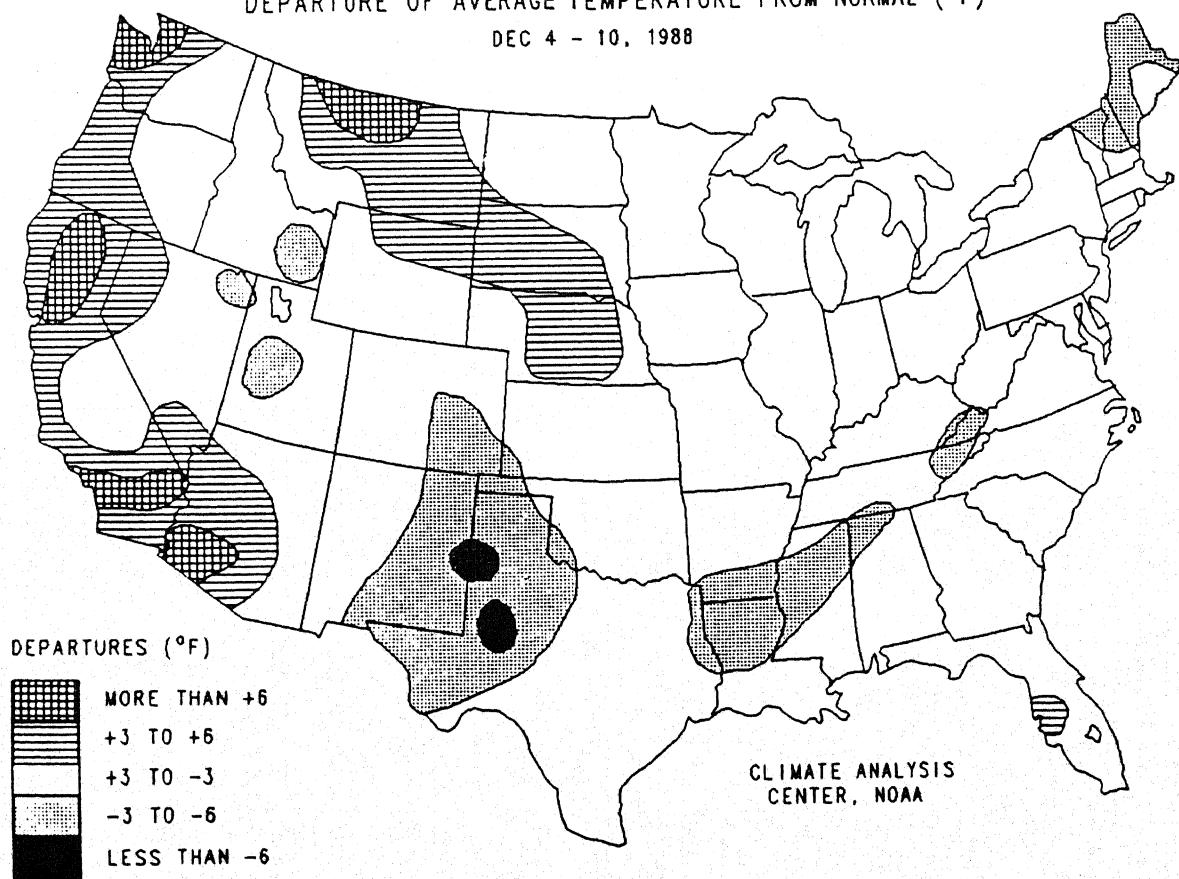
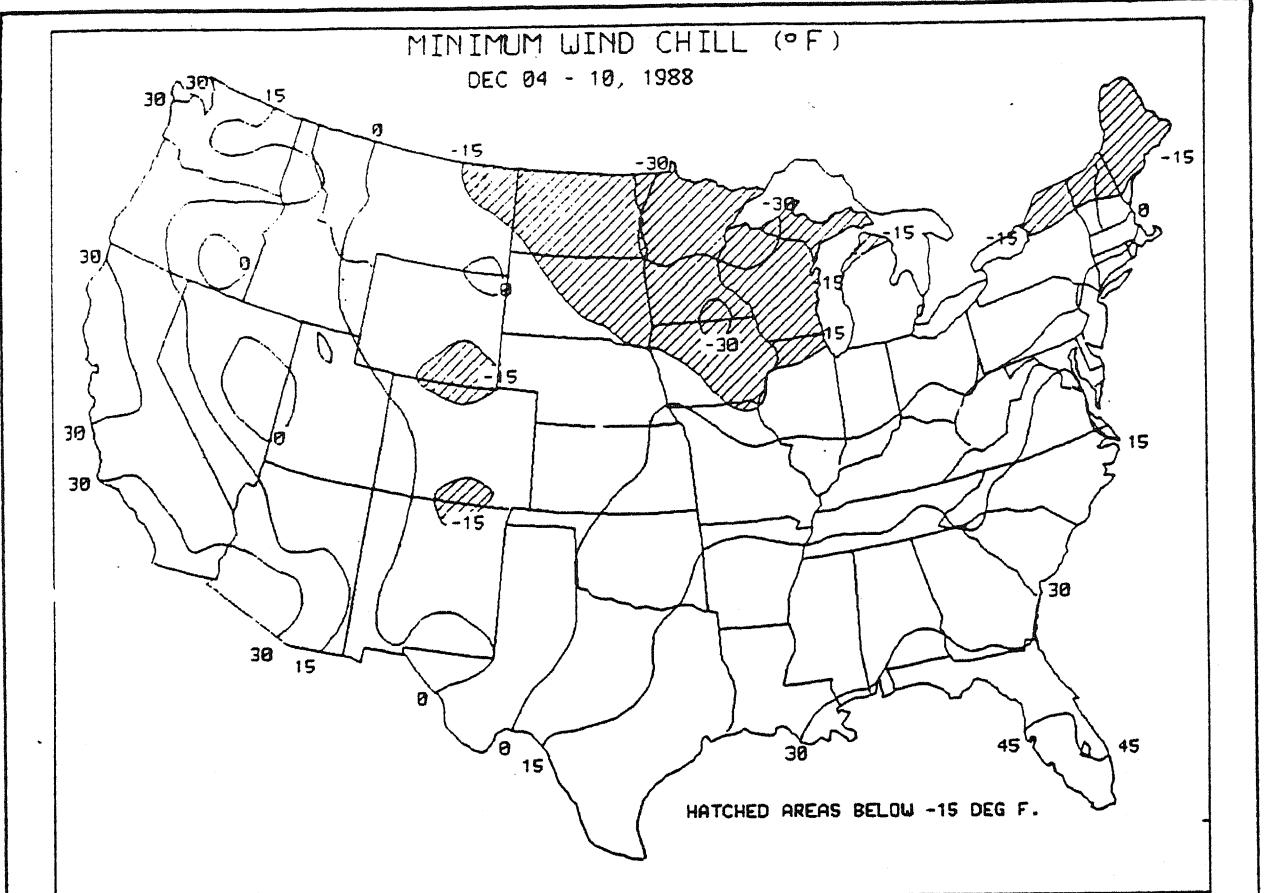


TABLE 2. Selected stations with temperatures averaging 4.5°F or more ABOVE normal for the week.

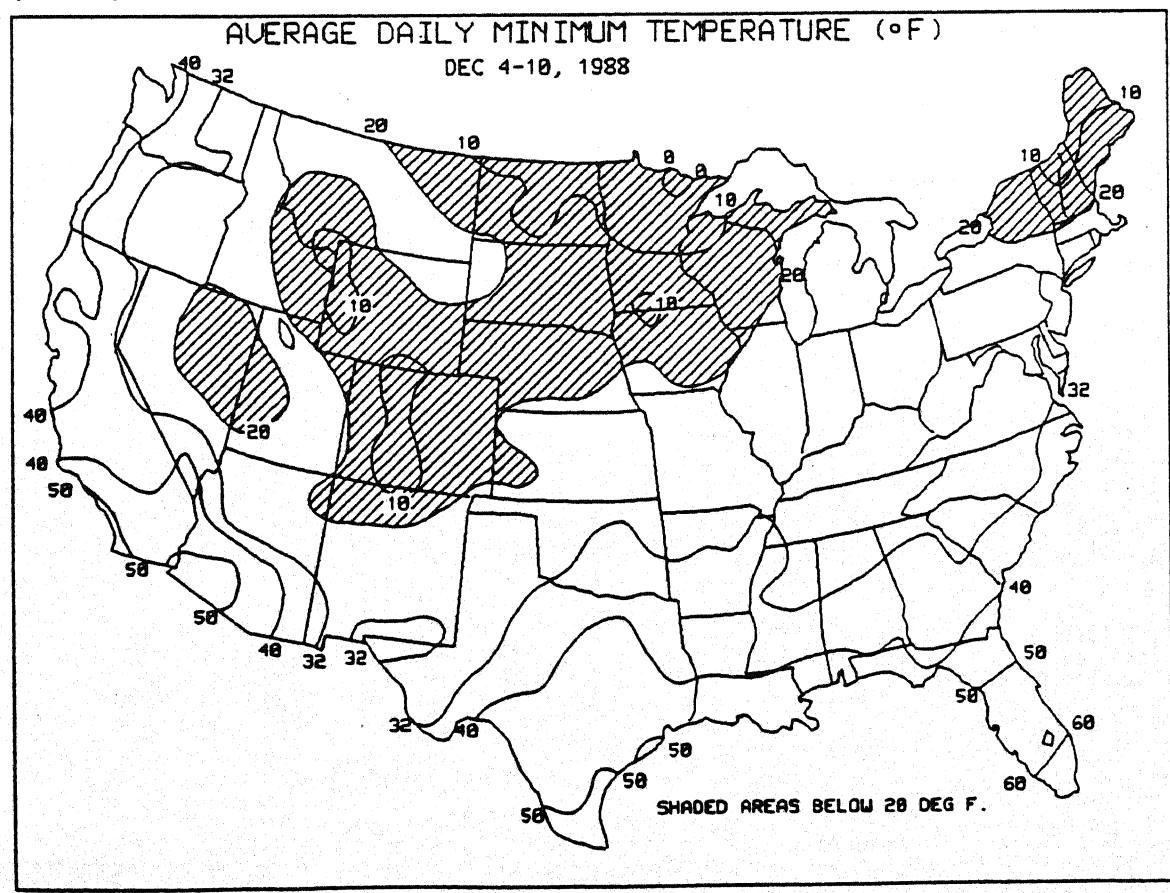
<u>Station</u>	<u>TDepNml</u>	<u>AvgT(°F)</u>	<u>Station</u>	<u>TDepNml</u>	<u>AvgT(°F)</u>
Cut Bank, MT	+9.6	32.7	Hoquiam, WA	+5.8	48.6
Havre, MT	+8.8	31.0	Olympia, WA	+5.8	45.5
Big Delta, AK	+8.4	5.9	Kenai, AK	+5.8	19.4
San Bernardino/Norton AFB, CA	+7.7	61.5	Talkeetna, AK	+5.7	15.8
Miles City, MT	+7.5	31.6	Redding, CA	+5.6	53.8
San Jose, CA	+7.4	57.7	Bellingham, WA	+5.6	45.7
Redmond, OR	+7.3	41.4	Gillette, WY	+5.6	32.4
Mt. Shasta, CA	+7.2	43.2	Hilo/Lyman, Hawaii, HI	+5.5	77.7
Los Angeles, CA	+7.1	64.9	Seattle/Tacoma, WA	+5.5	47.2
Marysville/Yuba Co., CA	+7.0	54.3	Omak, WA	+5.4	33.8
Thermal, CA	+6.8	62.4	Las Vegas, NV	+5.3	51.8
Yuma, AZ	+6.7	64.1	Great Falls, MT	+5.3	33.6
Quillayute, WA	+6.7	48.4	Blythe, CA	+5.2	60.2
Phoenix, AZ	+6.6	60.9	Santa Barbara, CA	+5.2	58.4
Sacramento, CA	+6.3	52.9	San Francisco, CA	+5.2	55.2
Glendale/Luke AFB, AZ	+6.1	59.3	Sitka, AK	+5.0	38.5
Santa Maria, CA	+5.9	58.1	Lewistown, MT	+5.0	31.3
Long Beach, CA	+5.8	63.5	North Bend, OR	+4.9	52.0
Oakland, CA	+5.8	56.1	Juneau, AK	+4.7	33.3

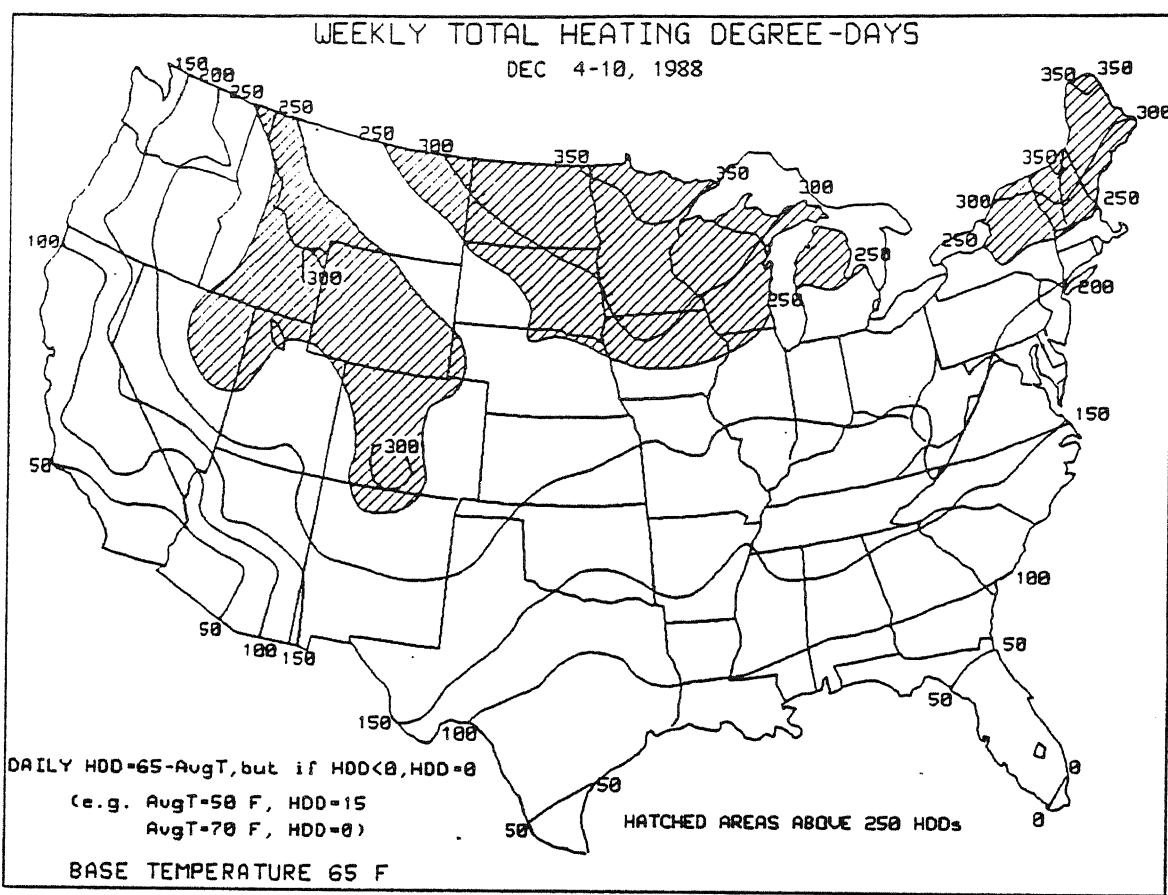
TABLE 3. Selected stations with temperatures averaging 4.0°F or more BELOW normal for the week.

<u>Station</u>	<u>TDepNml</u>	<u>AvgT(°F)</u>	<u>Station</u>	<u>TDepNml</u>	<u>AvgT(°F)</u>
Unalakleet, AK	-6.9	-3.9	Delta, UT	-5.0	25.9
Mt. Washington, NH	-6.7	4.6	Laramie, WY	-4.9	19.2
Kotzebue, AK	-6.4	-9.0	Caribou, ME	-4.7	14.2
Clovis/Cannon AFB, NM	-6.1	34.4	Pueblo, CO	-4.5	29.5
Aniak, AK	-5.9	-4.2	Nome, AK	-4.3	1.4
St. Paul Island, AK	-5.8	23.6	Houlton, ME	-4.1	15.8
Midland, TX	-5.7	41.3	Wink, TX	-4.1	42.1
Tucumcari, NM	-5.5	35.2	Idaho Falls, ID	-4.0	20.3
Spencer, IA	-5.3	17.6	Pocatello, ID	-4.0	24.3
Barter Island, AK	-5.0	-15.8	Eastport, ME	-4.0	25.9
Bettles, AK	-5.0	-11.9	Trinidad, CO	-4.0	30.9

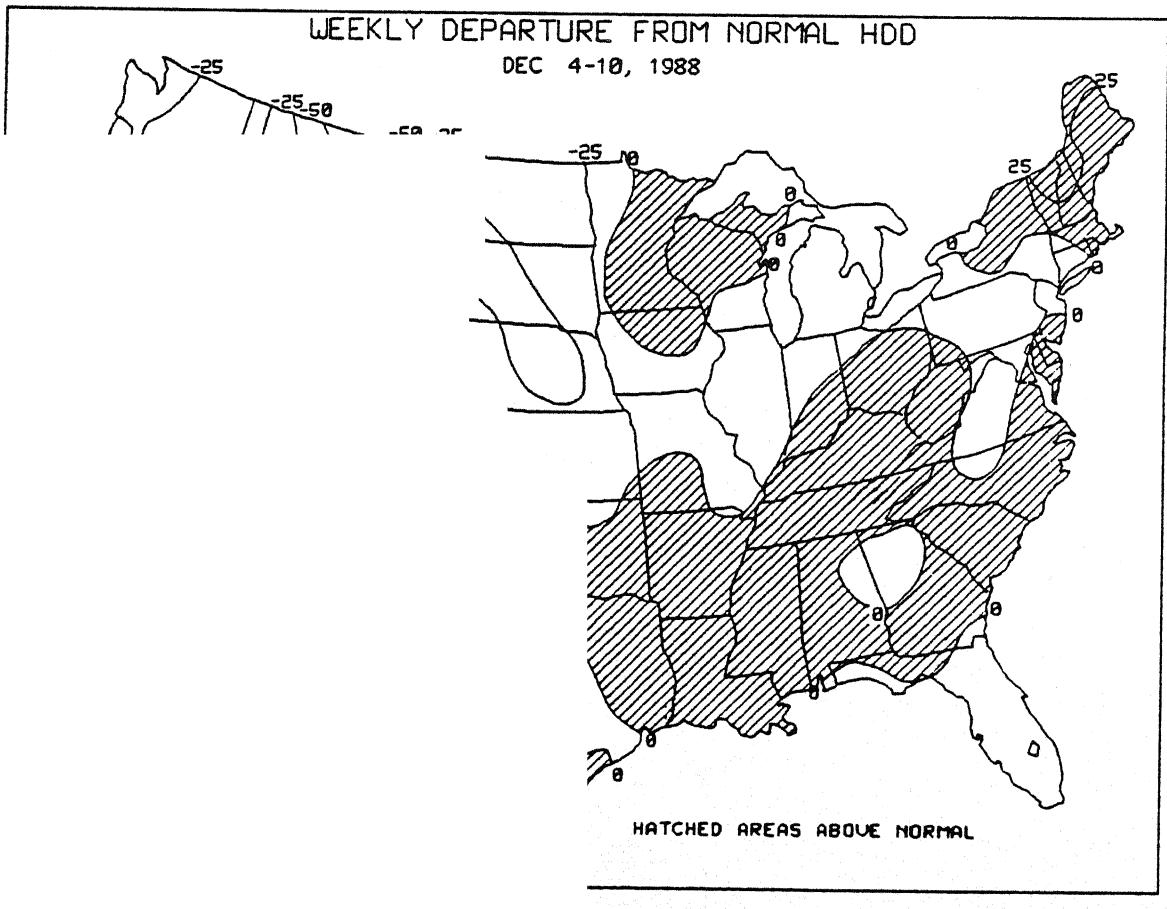


Towards the end of the week, bitterly cold Arctic air and gusty winds invaded the northern Great Plains, upper Midwest, and northern New England, producing wind chills less than -15°F (top). Lows averaged in the teens in parts of the Rockies, the northern Great Plains, upper Midwest, and northern New England (bottom).



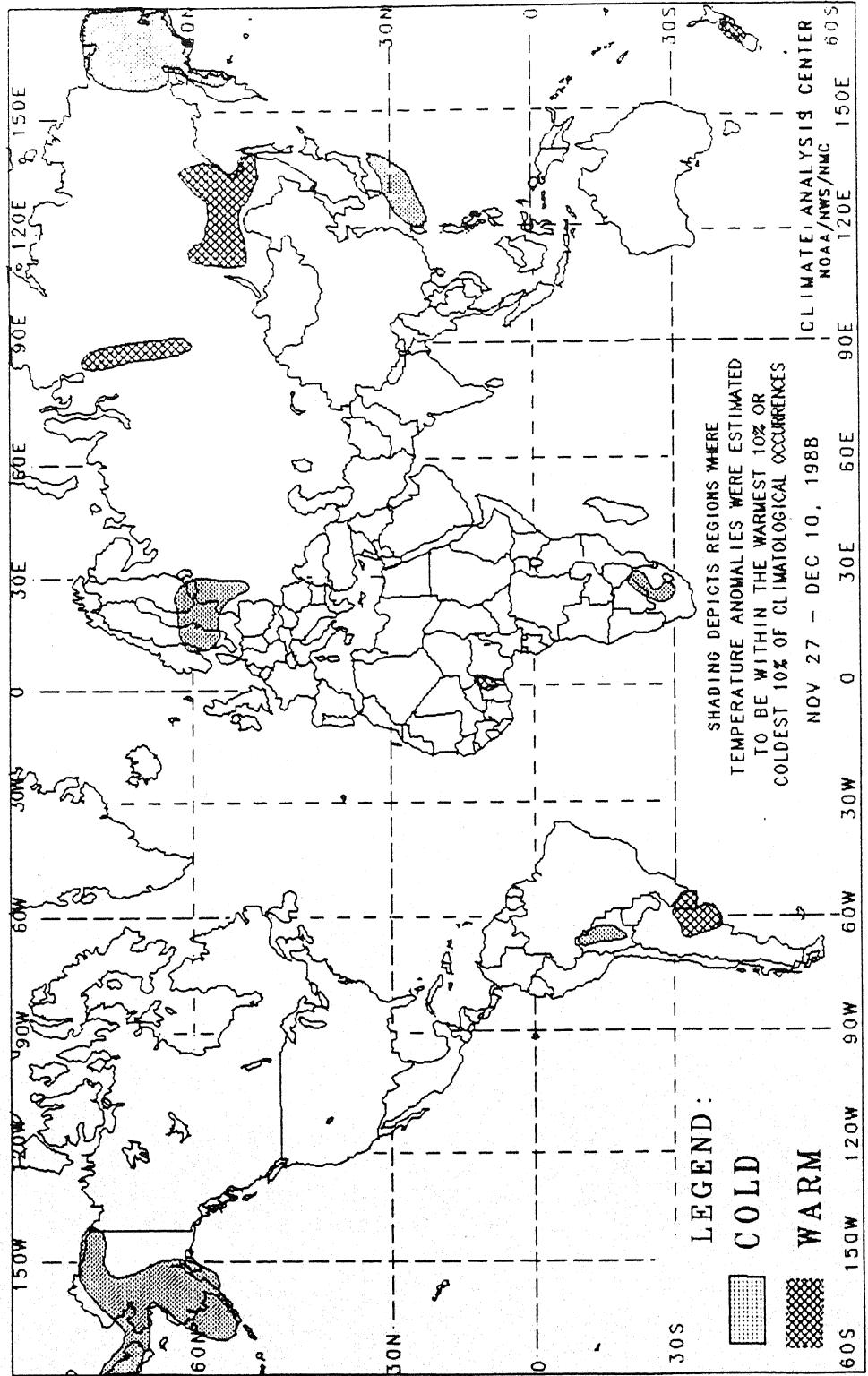


The weekly heating usage exceeded 250 HDD's in much of the Rockies, northern Great Plains, upper Midwest, and northern New England (top) even with less heating demand than normal in the first two regions (bottom).



GLOBAL TEMPERATURE ANOMALIES

2 WEEKS

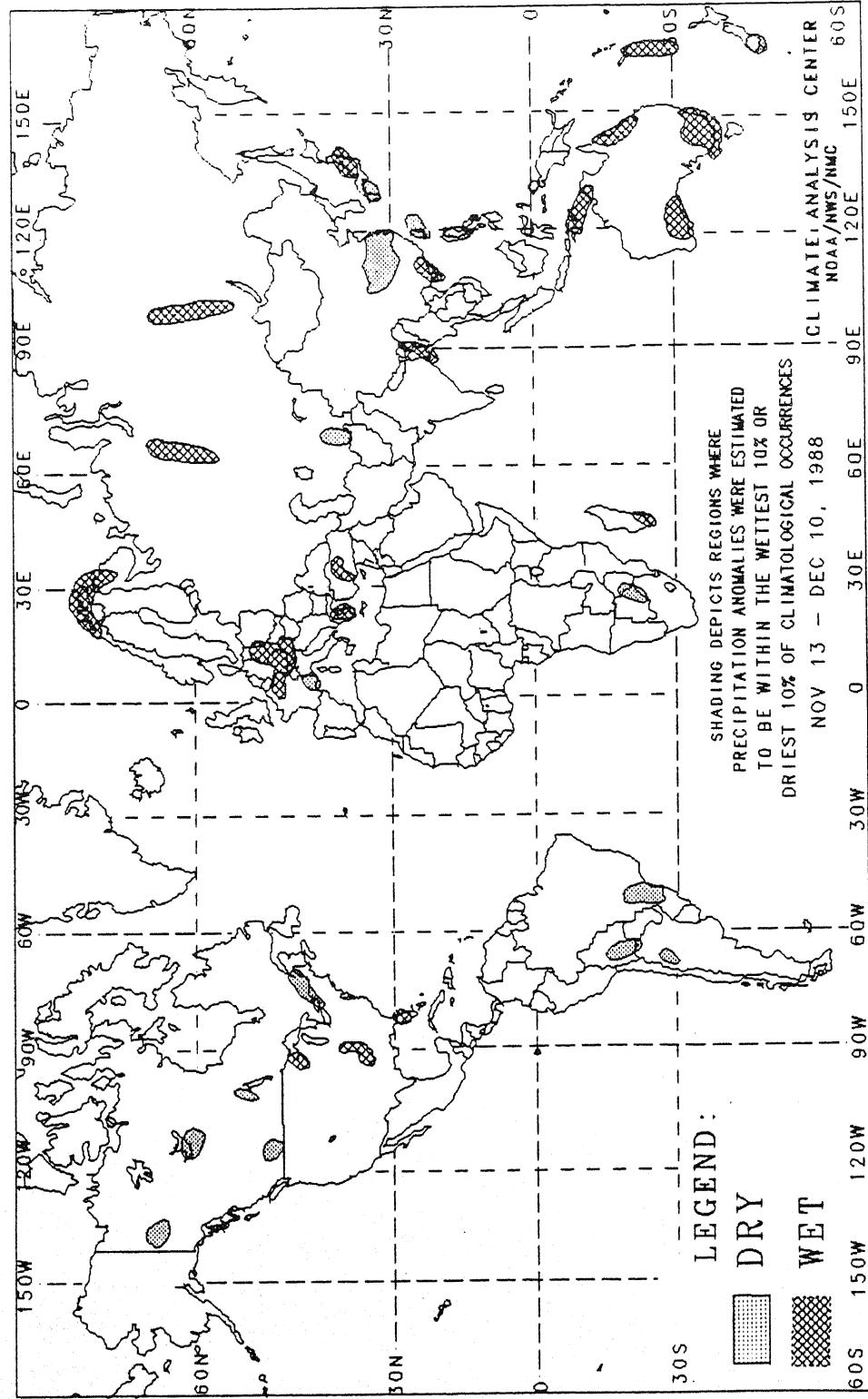


The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining precedents, or both.

GLOBAL PRECIPITATION ANOMALIES

4 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

UNITED STATES SEASONAL CLIMATE SUMMARY

AUTUMN (SEPTEMBER - NOVEMBER, 1988)

Autumn 1988 temperature and precipitation anomalies were relatively minor as compared to this year's record-breaking weather events that occurred during the Spring (March-May) and Summer (June-August) seasons. In the mid-Atlantic, central Appalachians, and Ohio Valley, temperatures averaged below normal due mainly to an unseasonably cold October while unusually warm weather was observed in Texas, Florida, and the western third of the nation. Excess precipitation was measured in much of the Southeast, Ohio Valley, and western Great Lakes. In contrast, abnormally dry conditions persisted throughout much of the Great Plains, southern Florida, and the central Rockies. After a slow start, convective activity over the tropical waters of the Atlantic Ocean rapidly increased; however, only minimal-strength Hurricane Florence and late season Tropical Storm Keith directly affected the United States. The most notable of the storms included Hurricanes Gilbert and Joan which caused numerous deaths and catastrophic damage to the western Caribbean and Central America, respectively. In addition, Hurricane Gilbert became the strongest storm ever recorded in the western hemisphere in terms of lowest central barometric pressure. During November, severe thunderstorms spawned dozens of late season tornadoes in the lower and middle Mississippi Valleys and in eastern North Carolina.

Most of the eastern third of the country received near to above normal precipitation, especially the previously drought-stricken areas of the Mississippi, Ohio, and Tennessee Valleys (see Figures 1, 2, and 5, Table 1). Since late July, surplus precipitation at most of these stations has significantly reduced or eliminated long-term deficits accumulated during this year's spring and early summer months. More than 15 inches of rain fell on the lower Mississippi, western Tennessee, and lower Ohio Valleys, the majority of it during November. Torrential downpours in September greatly contributed to a seasonal total of more than 20 inches in southern Alabama and northern Florida, according to the River Forecast Centers. After an extremely dry October in the Pacific Northwest and northern Rockies, heavy November precipitation pushed Autumn amounts slightly above normal. Elsewhere, the eastern Dakotas, coastal New England, and extreme southern Arizona recorded above normal precipitation, the latter area receiving unexpected heavy thundershowers in October. Alaska and Hawaii generally experienced near normal conditions; however,

inundating rains fell on southeastern and south-central Alaska during September and October, respectively.

While most of the nation measured near to above normal precipitation, much of the Great Plains and portions of the Rockies recorded subnormal seasonal amounts (see Figures 1, 2, and 5). Dryness was most acute in Texas, Kansas, and southern Florida as many stations observed less than half the normal Autumn precipitation (see Table 2). Additionally, most of southeastern Texas has remained quite dry for the entire year with accumulated annual precipitation deficiencies up to 22 inches through the end of November.

Unseasonably mild weather prevailed throughout the western half of the U.S. and from Texas eastward to Florida (see Figures 3, 4, and 6, Table 3). Greatest positive temperature departures (more than +4°F) were found in parts of the Great Basin, interior Oregon, the north-central Rockies, and south-central Texas. During October, a strong, persistent ridge of high pressure centered over the West was responsible for abnormally warm conditions in the area as dozens of stations established new daily and monthly maximum temperature records. Regionally, September-November 1988 temperatures were the second and eighth warmest since 1931 in the Pacific (WA, OR, CA) and Mountain (ID, MT, WY, NV, AZ, UT, CO, NM) states, respectively. Hawaiian temperatures averaged near to slightly above normal.

In contrast, temperatures averaged below normal in much of the eastern half of the nation with the exception of the extreme South (see Figures 3, 4, and 6, Table 4). Greatest negative temperature departures (between -2° and -4°F) were recorded in sections of the upper Mississippi Valley and throughout the Ohio Valley, central Appalachians, and mid-Atlantic. A deep trough of low pressure anchored over the East during October produced one of the coldest Octobers in history east of the Mississippi River. In Alaska, bitterly cold Arctic air in October and November in the northern, central, and western portions of the state produced seasonal temperatures as much as 9°F below normal. All six regions in the eastern half of the nation (New England, Middle Atlantic, South Atlantic, East-North Central, East-South Central, and West-North Central) observed below normal temperatures, but none of them were ranked in the ten coldest Autumns during the past 58 years.

TABLE 1. SELECTED STATIONS THAT WERE ABNORMALLY WET AND/OR RECORDED HEAVY PRECIPITATION AMOUNTS DURING THE AUTUMN, 1988.
 (Total precipitation more than 15 inches AND percent of normal precipitation more than 150%; OR, total precipitation more than 15 inches AND no normals).

Station	Amt (In)	%Norm	Station	Amt (In)	%Norm
Milton/Whiting NAS, FL	29.62	***	Greenwood, MS	17.30	162.1
Pensacola, FL	23.83	153.8	Gwinn/Sawyer AFB, MI	17.30	***
Memphis NAS, TN	23.30	***	Muskegon, MI	17.29	202.9
Jacksonville, FL	23.00	192.8	Marquette, MI	17.22	170.7
Columbus AFB, MS	22.88	***	Paducah, KY	16.86	166.9
Tampa/Mac Dill AFB, FL	22.51	***	South Bend, IN	16.82	182.8
Jonesboro, AR	22.31	214.5	Muscle Shoals, AL	16.73	161.2
Meridian, MS	21.17	219.4	Tuscaloosa, AL	16.72	172.2
Montgomery, AL	21.16	213.5	Birmingham, AL	16.48	156.1
Biloxi/Keesler AFB, MS	20.32	161.8	Cape Girardeau, MO	16.24	165.9
Jackson, TN	19.95	194.3	Blytheville AFB, AR	16.30	163.6
Tampa, FL	19.63	189.1	Pensacola NAS, FL	16.27	***
Memphis, TN	18.86	186.9	Atlanta, GA	16.20	178.8
McComb, MS	18.41	***	Jackson, KY	15.79	188.2
Little Rock AFB, AR	18.27	***	Beaufort MCAS, SC	15.60	***
Little Rock, AR	17.80	155.9	West Plains, MO	15.59	153.0
Meridian NAS, MS	17.77	***	Crossville, TN	15.45	150.9
Huntsville, AL	17.73	159.3	Chicago/O'Hare, IL	15.28	186.1
Bowling Green, KY	17.69	179.2	Sault Ste. Marie, MI	15.24	153.6
Grand Rapids, MI	17.65	201.9	Anniston, AL	15.15	151.5
Panama City/Tyndall, FL	17.59	***	Crestview, FL	15.14	***

(Note: Asterisks indicate station has no precipitation normals).

PERCENT OF NORMAL PRECIPITATION (%) 1 SEP 88 THRU 30 NOV 88

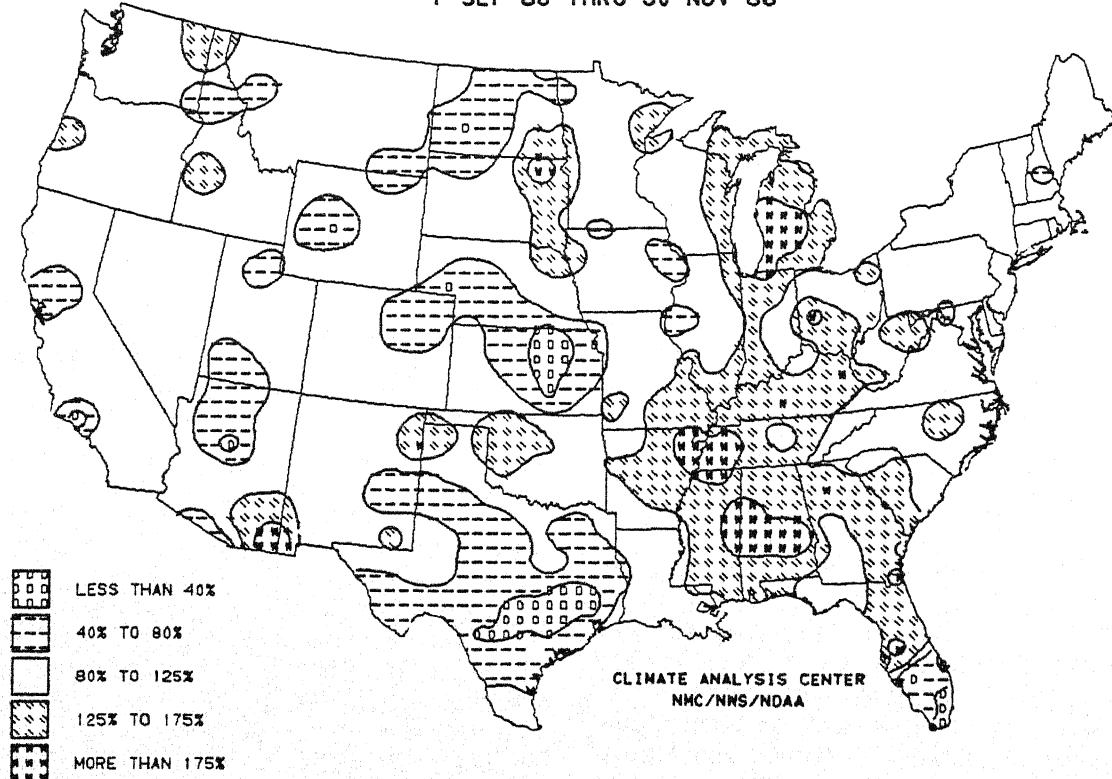


Figure 1. Autumn 1988 percent of normal precipitation. Unusually wet conditions existed in the eastern third of the country while extremely dry weather persisted in southern Florida and the central and southern Great Plains.

TABLE 2. SELECTED STATIONS THAT WERE ABNORMALLY DRY DURING THE AUTUMN, 1988.
 (Normal precipitation more than 4 inches AND percent of normal precipitation 50% or less).

<u>Station</u>	<u>Amt(In)</u>	<u>%Nm1</u>	<u>Nm1(In)</u>	<u>Station</u>	<u>Amt(In)</u>	<u>%Nm1</u>	<u>Nm1(In)</u>
Kenai, AK	0.89	12.2	7.30	Iliamna, AK	2.85	33.9	8.42
Prescott, AZ	1.04	25.7	4.04	Houston, TX	2.89	23.0	12.56
San Antonio, TX	1.48	16.6	8.91	Topeka, KS	3.07	38.3	8.02
Bethel, AK	1.60	35.7	4.48	College Station, TX	3.15	27.0	11.68
Concordia, KS	1.64	27.9	5.88	Victoria, TX	3.69	31.3	11.79
Nome, AK	1.97	44.0	4.48	Austin/Bergstrom, TX	4.19	47.6	8.80
Salina, KS	2.13	29.8	7.14	Key West, FL	5.00	34.5	14.50
Wichita, KS	2.24	30.5	7.34	Vero Beach, FL	5.21	31.7	16.45
Russell, KS	2.39	41.0	5.83	Miami, FL	5.32	29.8	17.85
Austin, TX	2.43	26.7	9.11	Fort Myers, FL	5.47	39.7	13.77
Honolulu, Oahu, HI	2.47	43.6	5.66	West Palm Beach, FL	9.18	45.0	20.39
Abilene, TX	2.76	41.2	6.70				

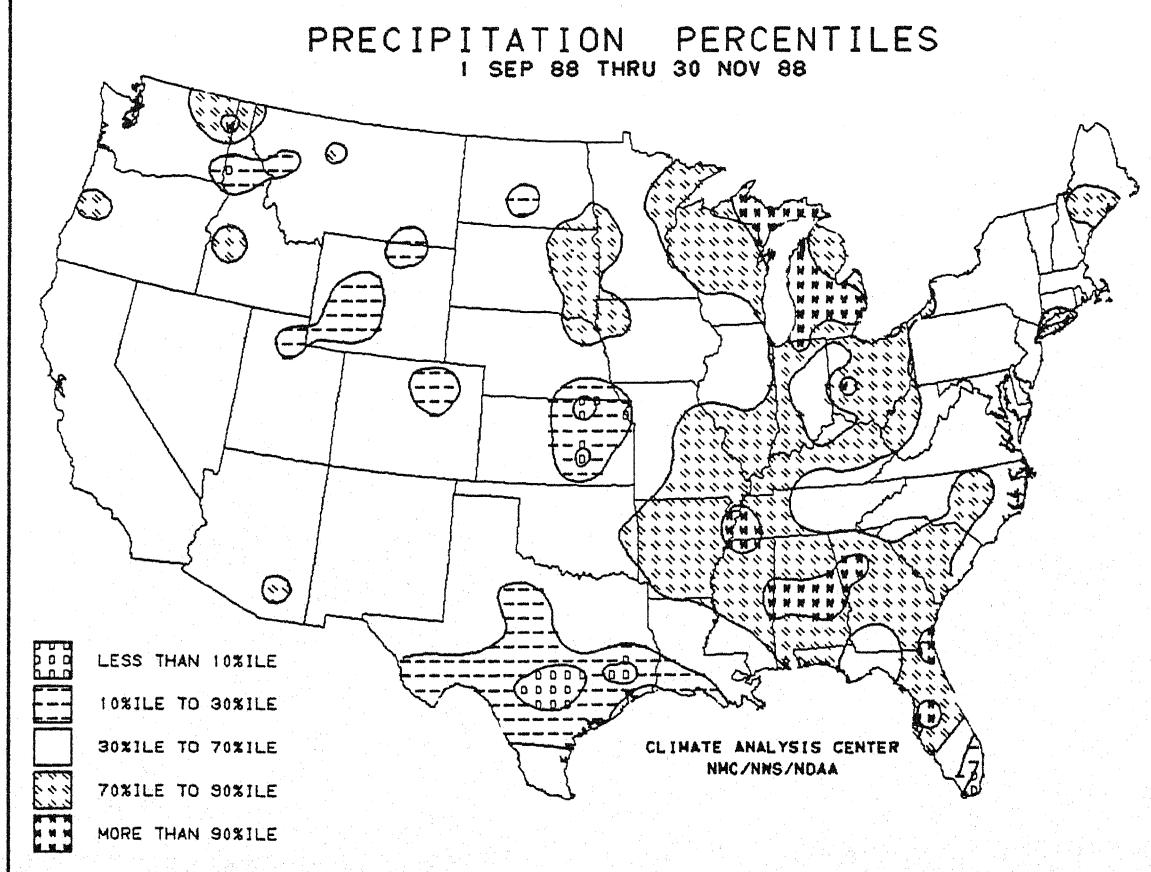


Figure 2. Autumn 1988 precipitation percentiles. Significantly wet conditions occurred in the western Great Lakes, the Ohio and Tennessee Valleys, and in most of the Southeast while southern Texas and eastern Kansas experienced substantial dryness.

TABLE 3. SEASONAL AVERAGE TEMPERATURE DEPARTURES MORE THAN +2.5°F.

<u>Station</u>	<u>Dep(°F)</u>	<u>AvgT(°F)</u>	<u>Station</u>	<u>Dep(°F)</u>	<u>AvgT(°F)</u>
Phoenix, AZ	+5.3	78.1	College Station, TX	+3.1	72.0
Reno, NV	+4.8	54.8	Missoula, MT	+3.1	47.1
Beeville NAS, TX	+4.0	76.1	Pendleton, OR	+3.0	55.4
Roswell, NM	+3.9	63.3	Yuma, AZ	+2.9	78.7
Medford, OR	+3.9	58.2	Las Vegas, NV	+2.9	70.0
Austin, TX	+3.8	73.0	Houston, TX	+2.8	72.8
Lander, WY	+3.7	49.1	Helena, MT	+2.8	46.9
Redmond, OR	+3.6	51.5	Prescott, AZ	+2.7	57.4
Burley, ID	+3.5	51.7	Walla Walla, WA	+2.7	56.9
Kalispell, MT	+3.5	46.1	Salt Lake City, UT	+2.7	55.2
San Antonio, TX	+3.4	73.0	Alice, TX	+2.6	75.5
Lewiston, ID	+3.4	55.2	Galveston, TX	+2.6	74.5
McAllen, TX	+3.3	77.7	Boise, ID	+2.6	54.1
Victoria, TX	+3.2	74.6	Miami, FL	+2.5	80.0
Austin/Bergstrom AFB, TX	+3.2	72.4	Fresno, CA	+2.5	66.5
Worland, WY	+3.2	48.2	Portland, OR	+2.5	56.7

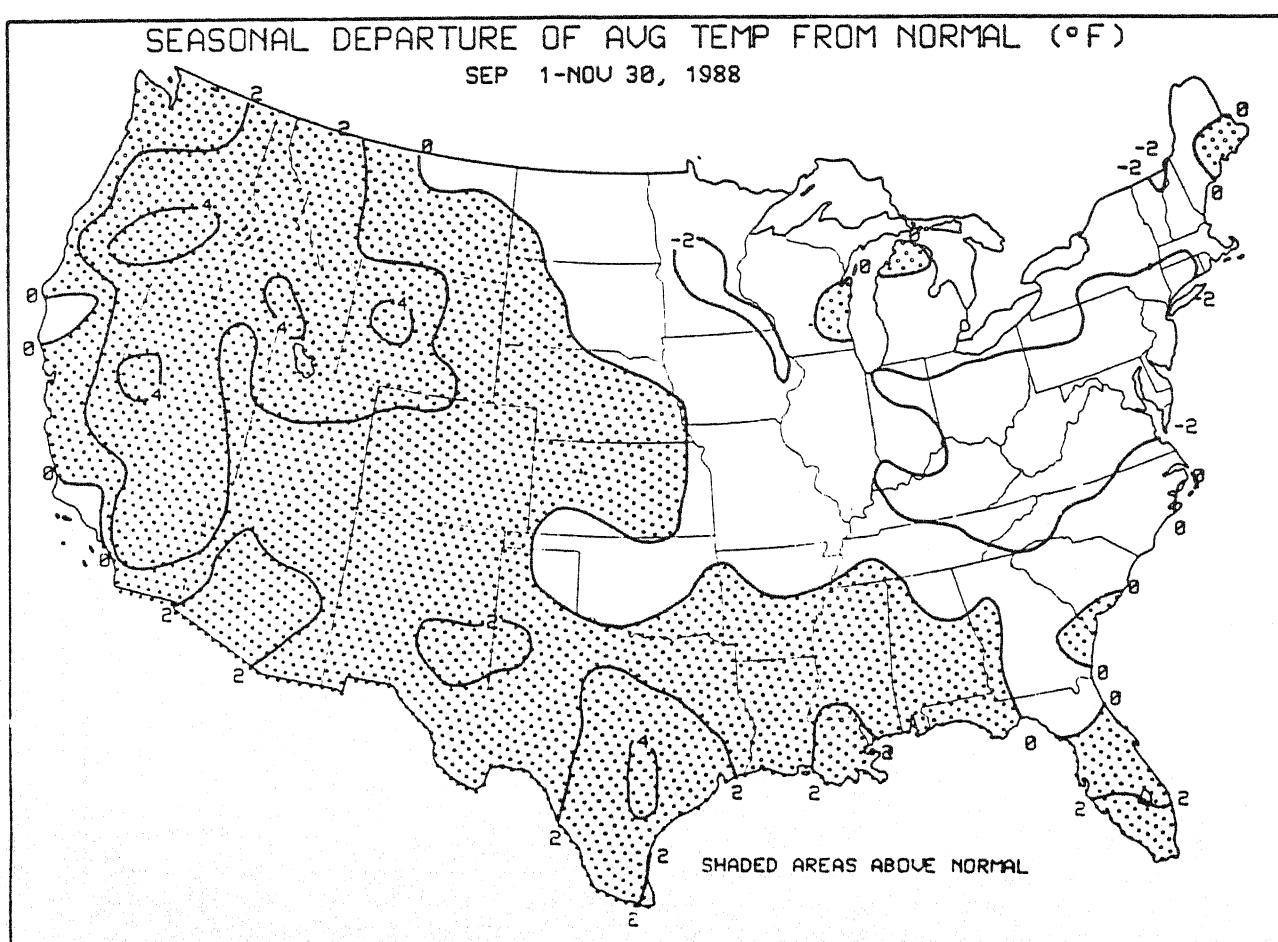


Figure 3. Autumn 1988 departure of average temperature from normal (°F). Temperatures in the western half and southern third of the nation averaged above normal, especially in Texas and the Intermountain West. In contrast, the northeastern and eastern U.S. recorded unseasonably cold weather.

TABLE 4. SEASONAL AVERAGE TEMPERATURE DEPARTURES LESS THAN -2.5°F.

<u>Station</u>	<u>Dep(°F)</u>	<u>AvgT(°F)</u>	<u>Station</u>	<u>Dep(°F)</u>	<u>AvgT(°F)</u>
Barrow, AK	-9.0	5.7	Atlantic City, NJ	-3.3	53.2
Barter Island, AK	-8.2	7.8	Poughkeepsie, NY	-3.2	48.5
Bettles, AK	-6.1	14.9	Harrisburg, PA	-3.1	52.2
Big Delta, AK	-5.8	20.0	Parkersburg, WV	-3.1	52.9
Fairbanks, AK	-5.2	19.6	Mt. Washington, NH	-3.0	27.6
Aniak, AK	-4.7	25.0	Iliamna, AK	-2.9	32.5
Bethel, AK	-4.5	26.4	Millville, NJ	-2.9	53.7
King Salmon, AK	-4.4	30.1	Bowling Green, KY	-2.8	55.4
Gulkana, AK	-4.2	22.1	Huntington, WV	-2.7	54.4
McGrath, AK	-4.1	21.0	Roanoke, VA	-2.7	54.6
Unalakleet, AK	-4.1	24.0	Morgantown, WV	-2.6	52.0
Nome, AK	-3.6	25.3	Wrightstown/McGuire AFB, NJ	-2.6	54.2
Kotzebue, AK	-3.5	20.8			

TEMPERATURE PERCENTILES
1 SEP 88 THRU 30 NOV 88

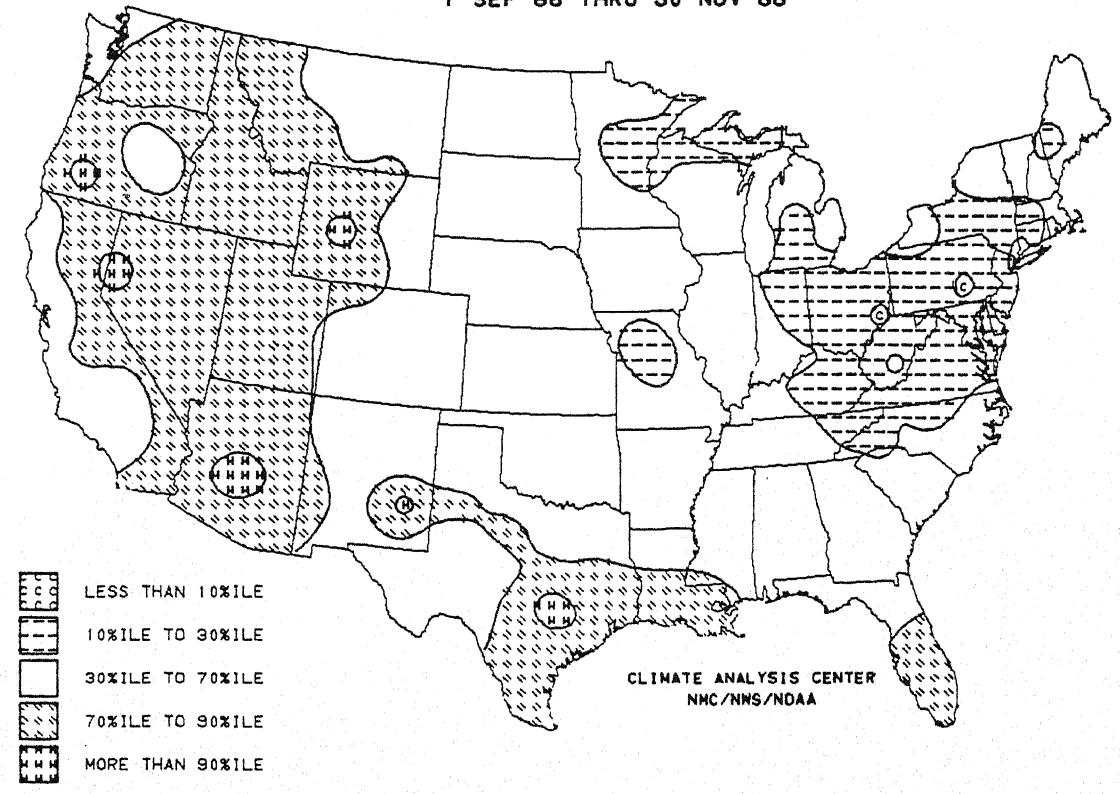


Figure 4. Autumn 1988 temperature percentiles. Statistically, temperatures were significantly above normal in the Far West and Texas and substantially below normal in the Great Lakes, Ohio Valley, central Appalachians, and mid-Atlantic.

AUTUMN 1988 PRECIPITATION RANKINGS
01 SEP 88 THRU 30 NOV 88

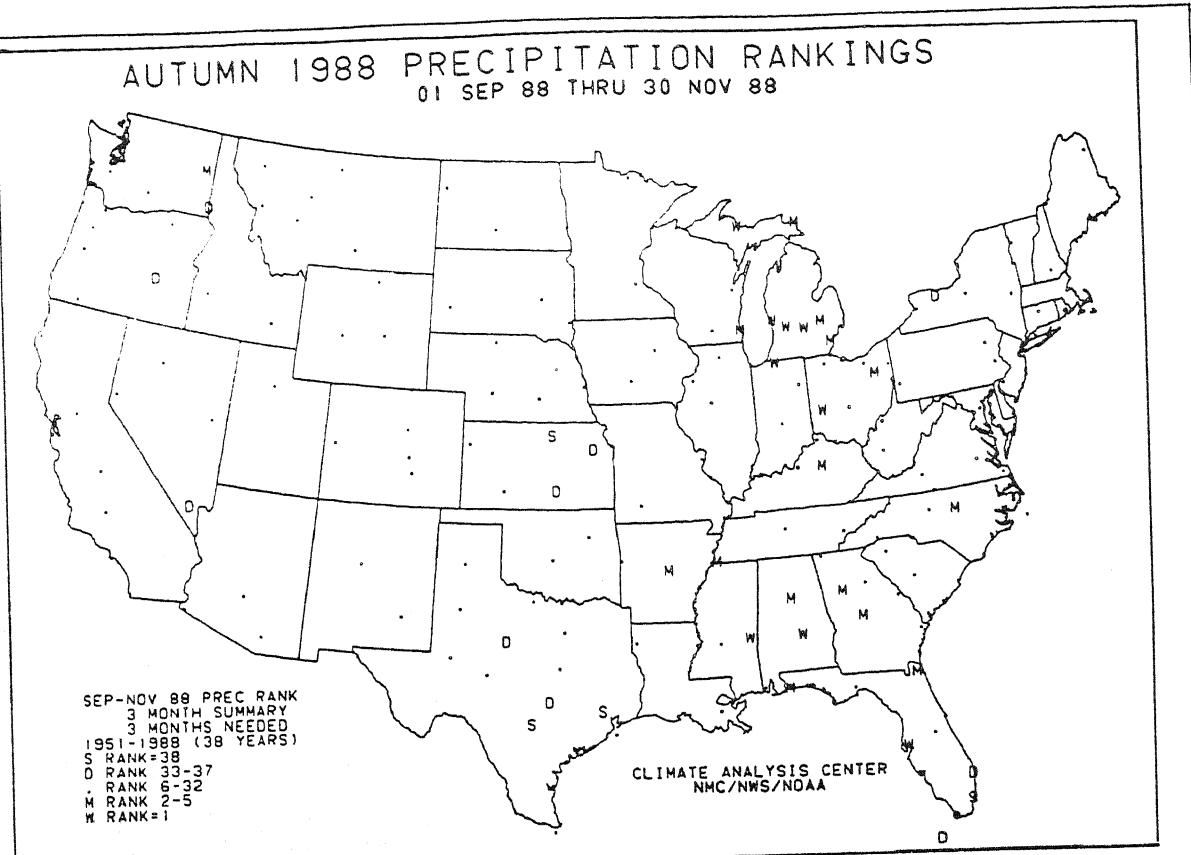


Figure 5. Autumn 1988 precipitation rankings during the past 38 years. The symbols refer to the September-November 1988 precipitation ranking of individual stations where: "S" driest; "D" 2nd-5th driest; "M" 2nd-5th wettest; "W" wettest. Wettest stations since 1951 included [Obs/Nml (inches)]: driest, Montgomery, AL [21.16/9.91], Meridian, MS [21.17/9.65], Dayton, OH [19.63/10.38], Tampa, FL [13.95/6.98], South Bend, IN [16.82/9.20], Lansing, MI [13.58/7.19], Grand Rapids, MI [17.65/8.74], Muskegon, MI [17.29/8.52], and Marquette, MI [17.22/10.09]. Driest stations since 1951 included: Miami, FL [5.32/17.85], San Antonio, TX [1.48/8.91], Houston, TX [2.89/12.56], and Concordia, KS [1.64/5.88].

AUTUMN 1988 TEMPERATURE RANKINGS
AL SEP 88 THRU 30 NOV 88

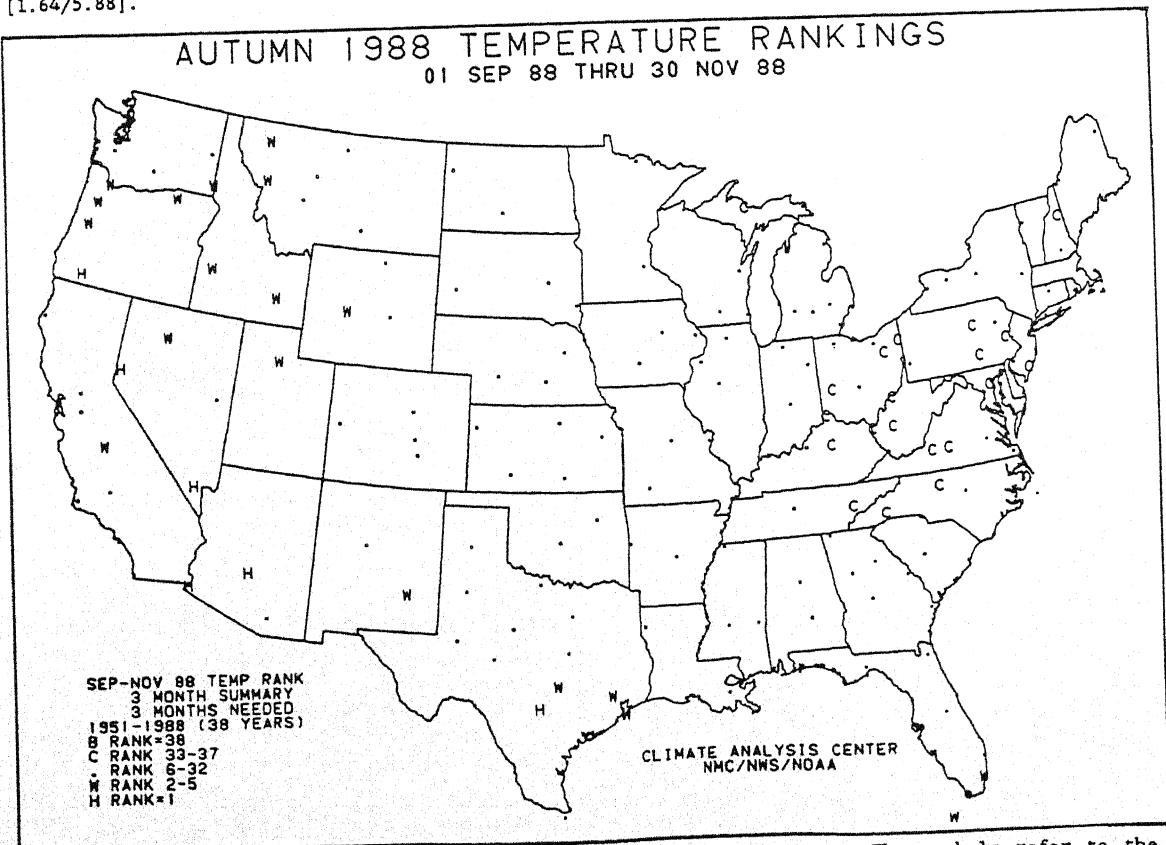


Figure 6. Autumn 1988 temperature rankings during the past 38 years. The symbols refer to the September-November 1988 temperature rankings of individual stations where: "C" 2nd-5th coldest; "W" 2nd-5th warmest; "H" warmest. Warmest stations since 1951 included [AvgT/TDepMnl ($^{\circ}$ F)]: Phoenix, AZ [78.1/+5.3], San Antonio, TX [73.0/+3.4], Yuma, AZ [78.8/+2.9], Las Vegas, NV [70.0/+2.9], Reno, NV [54.8/+4.8], and Medford, OR [58.2/+3.9].

